# Vermont Guidelines on Vision

*All about Eyes but the Wink . . . . .*

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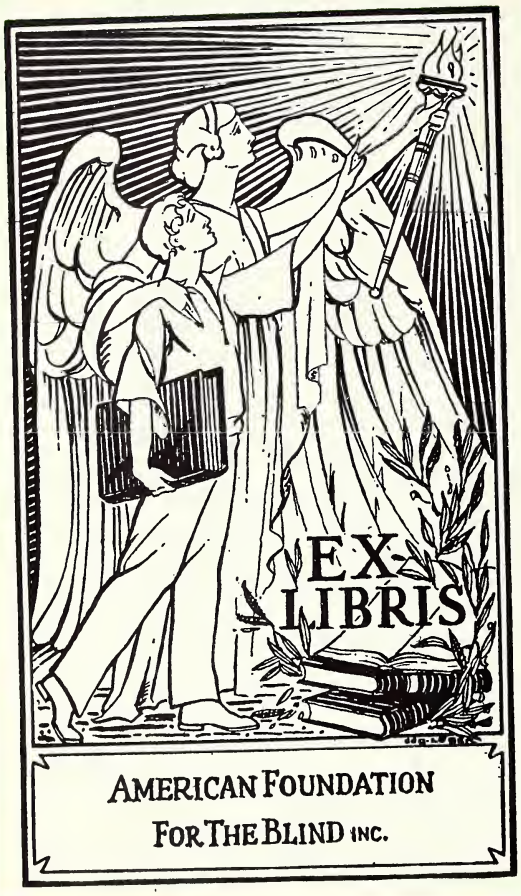


AMERICAN FOUNDATION
FOR THE BLIND INC.

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# A VERMONT GUIDEBOOK ON VISION

## 1972

*All about Eyes but the Wink...*

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# INTRODUCTION
# AND
# ACKNOWLEDGEMENT

Children learn (take in the world)(and try out the world) via their five senses: SIGHT, hearing, touch, taste, and smell. The protection and preservation and intactness of SIGHT is vitally important to health and learning from firth on. Prevention of visual defect and the earliest possible detection and ophthalmological and optometric remediation of this handicap is one of our collective goals. Another goal is to insure that visually handicapped and/or blind infants, children, and youth in Vermont receive whatever special education is needed to insure their optimum growth and development as citizens of this State.

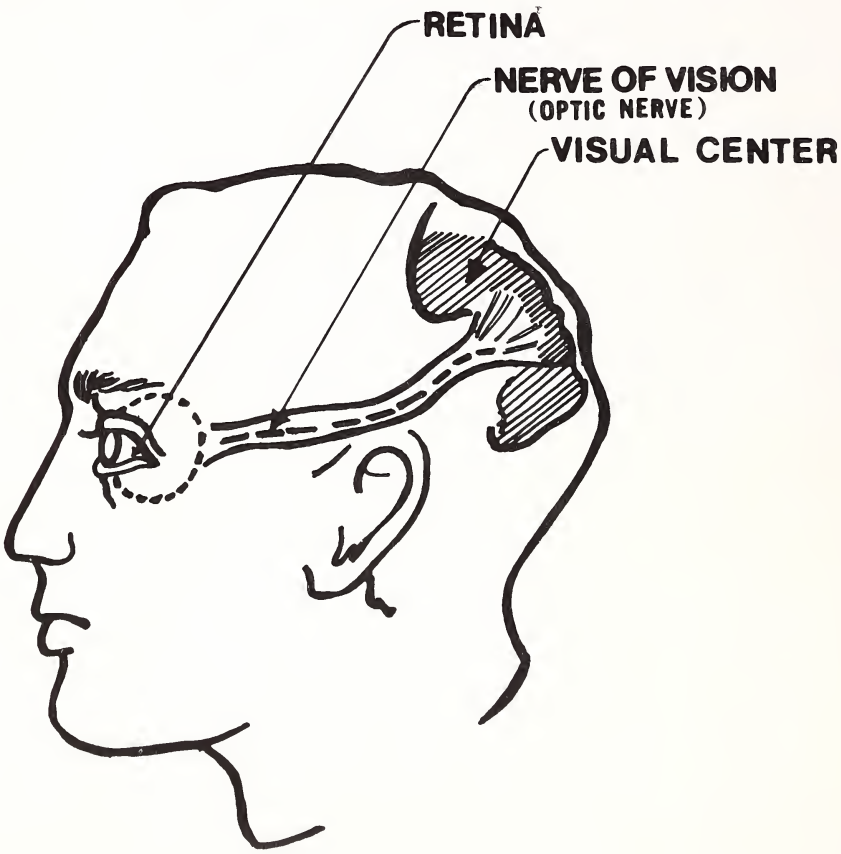
Thus, this resource manual on vision is written for all Vermont citizens but particularly for parents, teachers (of pre-school age children as well as children six years and older), nurses (public health nurses, newborn nursery nurses, school nurses), physicians, administrators and staffs of all public and private agencies, schools, clinics, volunteer programs dealing with infants, young children, and youth in this State. We hope for wide distribution of this booklet, extensive use, and constructive criticism from you as to where to make such a booklet more useful. It is freely available from the Division of Child Health Services, State Department of Health, Burlington and from the Office of Child Development, 43 State Street, Montpelier.

Acknowledgement goes to many persons for work on, and input to, this manual but particularly to: Miss Emily Sheldon, Program Developer, Vermont Association for the Crippled; Mrs. Samuel Stowell, Rutland; Mrs. Shirley Booth, Rutland; Mr. Harry Victor, Castleton State College; Miss Clare Nugent, Mrs. Judy Thompson, Miss Sibyl Kirby, Mrs. Theresa Brown, Vermont Association for the Crippled. The assistance of the Vermont Association for the Blind, Vermont Ophthalmologists, Vermont Optometrists, the Division of Special Education of the State Department of Education, the Division of the Blind and Visually Handicapped of the Department of Rehabilitation, the State Department of Health and the Office of Child Development is greatly appreciated.

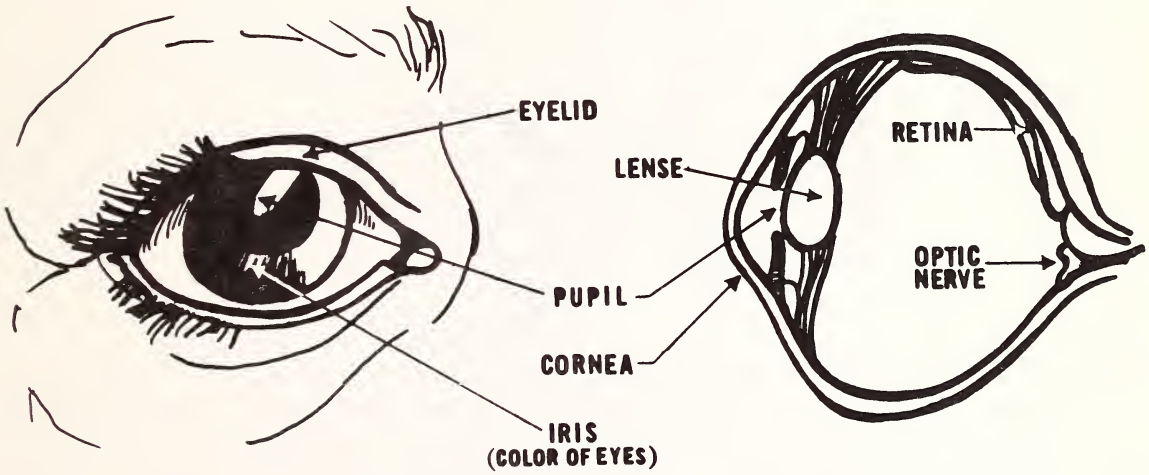
3/28/73 letter request

HOW WE SEE

The eye and its helpers, the optic nerve and the visual center of the brain, are like a camera. Each has a lens with its focussing mechanism. The camera has a light sensitive film; the eye, a light-sensitive retina. In order to see the photographed picture there is development of the film; the visual center of the brain interprets what is seen by decoding messages sent from the retina.



Light travels in straight lines called rays. The front covering of the eye, the cornea, is clear like window glass and is curved. The curved cornea bends the light rays enough so they pass through the opening in front of the lens - the pupil. There are little muscles which hold the lens in place and which also can change the shape of the lens for near and far focussing. The lens is made thinner when looking at distant objects and thicker for near ones. A normal eye, with the ideal distance between the lens and the back of the eye, bends the light rays, whether from far or near objects, so they focus exactly on the retina. The retina, at the back of the eye, is the light-sensitive "film" of man's natural "camera". The retina is made up of millions of tiny cells of two types - rod cells which work even in the very dim light of the night, and cone cells which require much more light and which make it possible to see color and fine details. When light rays are focussed on these sensitive rod and cone cells a chemical change takes place which triggers off the sending of an impulse (or message) via the optic nerve (a bundle of tiny, hair-like nerve fibers) to the seeing center at the back of the brain. There the vision messages are unscrambled so the person knows what is seen. The reason for the millions of rod and cone cells is that man keeps seeing things in fast succession. Thus, as long as a person is seeing, chemical changes are taking place in a succession of light sensitive cells so messages are constantly being sent to and decoded by the brain.

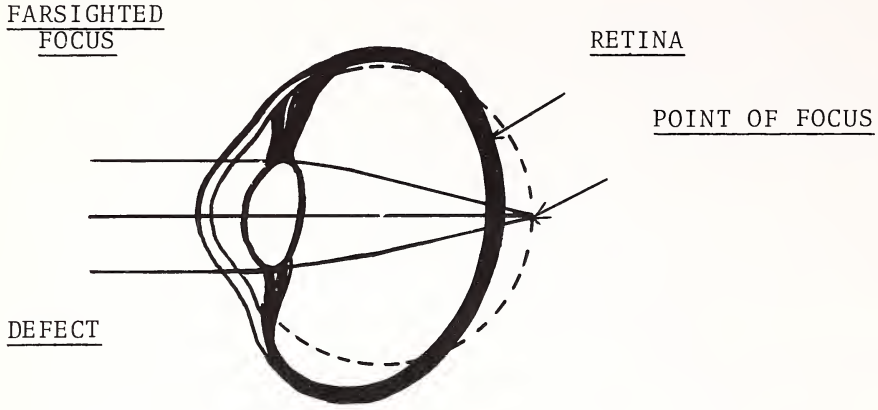


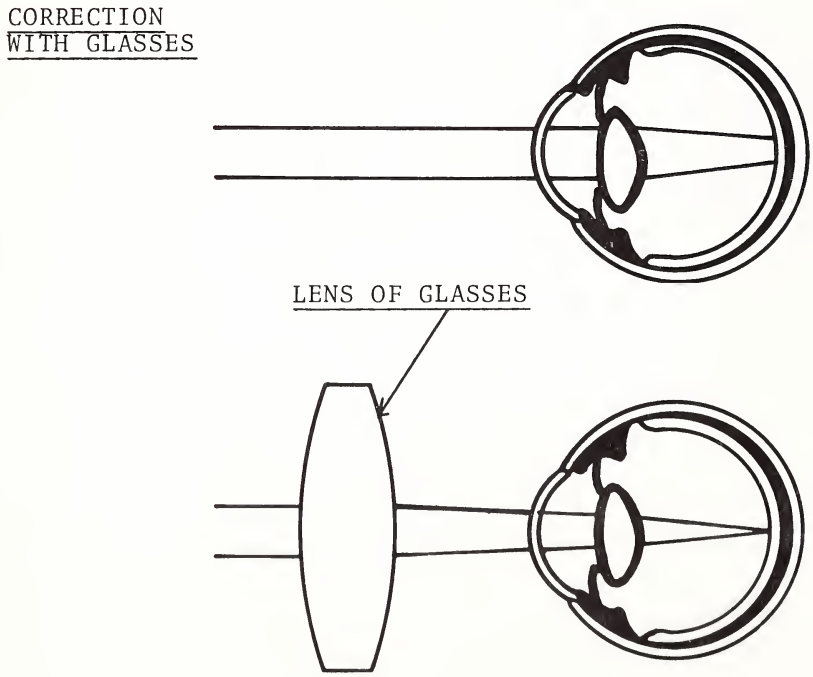

FRONT VIEW

SIDE VIEW

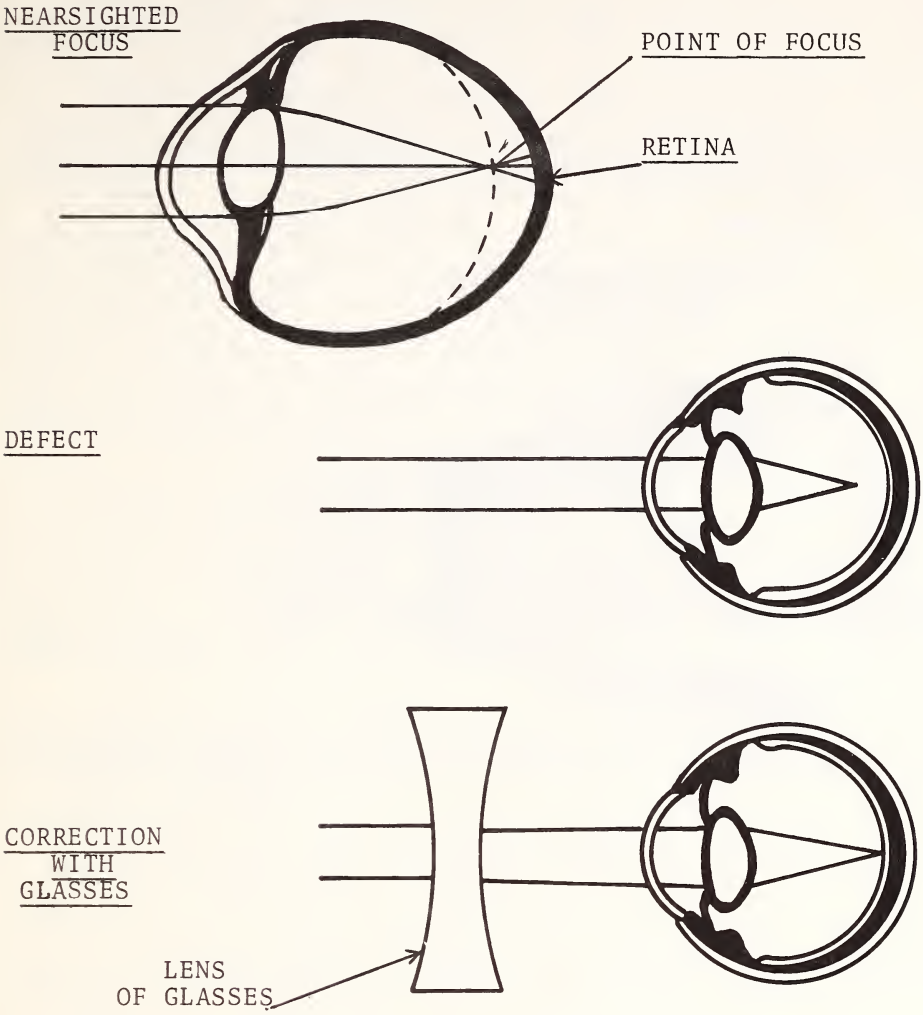
## VISUAL ACUITY PROBLEMS

If the eye measurement from front to back is less than normal or the cornea is less curved than normal the point of focus comes behind the retina and the person is farsighted. The light rays when bent do not focus on the retina. They focus behind and this causes blurry vision. The muscles which change the lens shape may try to make up for this but in time they get tired from this extra work load and a lens in the form of glasses must be added.



If the eye measurement from front to back is longer than normal and/or the cornea is more highly curved than normal, the focus comes in front of the retina and the person is nearsighted. A differently shaped lens is needed in glasses to correct this.



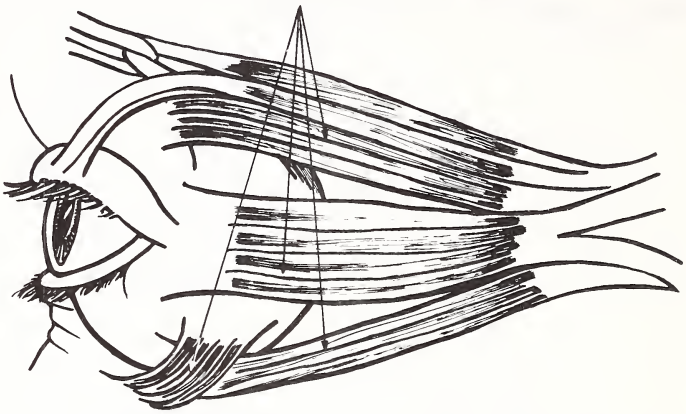

If the cornea of the eye is not symetrically shaped there is the problem known as astigmatism. An example in everyday life of a non-astigmatic shape is a spoon with a completely round bowl with equal curve in all directions. An astigmatic shape is like a cooking spoon the bowl of which is longer than it is wide. The way this astigmatically shaped lens effects vision is to blur it. A special correction in the glasses lens will correct this so vision is clearer. If there is also a near or far-sighted acuity problem there would need to be an added correction for the acuity problem beside the one for astigmatism.

EYE MUSCLES

The two eyes are meant to function as a team. If one eye turns to the right the other one does, if one eye looks up, the other does. These movements of each eye are controlled by six muscles - or twelve muscles for the two eyes. If the muscles of the two eyes are working together as a team the same object is seen with each eye. Thus two nearly like messages are taken to the brain. The brain combines them into one picture or fuses them. This is called fusion. This prevents double vision.

Eyes may fail to work as a team with one eye turning differently because of inheritance, farsightedness which is not corrected, injury to the brain or eye muscles during the birth process, a loss of vision in one eye, illness or accident.

**MUSCLES WHICH TURN THE EYE UP,DOWN,IN and OUT**



Any difference in the way the two eyes move together is called a "tropia" or turning.

ESOTROPIA means that one eye turns inward as the other eye looks straight ahead.

EXOTROPIA means that one eye turns outward as the other eye looks straight ahead.

HYPERTROPIA means that one eye turns upward as the other eye looks straight ahead.

HYPOTROPIA means that one eye turns downward as the other eye looks straight ahead.

The terms "strabismus", "squint" and "cast" all refer to abnormal turning of one eye. Because there are many variables in tropias, careful examination by an eye specialist (ophthalmologist or optometrist) is needed to determine if exercises, patching, drops, glasses, surgery or a combination are needed; to determine whether treatment will affect appearance only. Because vision can be affected in some instances, "crossed eyes" should be examined by an eye specialist very, very early in life - for children born with "crossed eyes" as early as infancy; for children acquiring "crossed eyes" at 2½ or 3 years as soon as the change is observed.

AMBLYOPIA is the term often connected with an untreated strabismus in a young child, or a refractive error difference between the two eyes. Because of the blurring and confusion of the two different images from the two eyes, the brain finally compensates by suppressing the vision in the turned eye to prevent double vision. An eye not used becomes a "lazy eye". If treatment is not given in time, vision decreases to the point of uselessness. Because early treatment can reverse this, Vermont's Department of Health conducts Amblyopia Clinics for pre-school age children 3 years and over.

DEPTH PERCEPTION Two eyes, well aligned and moving together as a team, send picture messages to the brain for each eye which are nearly alike but not quite. The brain fuses the two pictures into one but the "not quite" parts of the pictures are important too because they clue us in on distances whether attampting to catch a ball, placing an object on a shelf, or judging if we have space enough to pass a car before an oncoming car reaches us.

These "not quite the same messages" give man depth perception. (Close one eye and attempt to catch or bat a ball and the lack of depth perception will be apparent.) A person with vision in one eye has to learn how to gauge distance in less accurate and harder ways.

COLOR BLINDNESS There are conflicting beliefs about the basis for color blindness. One theory is that there are three types of cone cells, the cells which make it possible to see color, in the retina. Each type is especially sensitive to one color of light. Partially color blind persons have only two types of cone cells which respond to light stimulation. Therefore, their awareness of color is limited to mixtures of these two colors. Totally color-blind people have only one type of cone cell responding to stimulation. Therefore, they do not see colors as such but only shading such as the difference between red and pink.

Color blindness may be tested. It is an annoying rather than serious condition. It cannot be cured. In school, color clues are often used so it is important for pupil and teacher alike to know if there is a partial or total color blindness. Traffic lights now usually follow a standard pattern with the red at the top so a color blind driver will not confuse stop and go. Pilots need to see colors in order to distinguish among a landing strip, water, and grass.

Color blindness affects only a person's awareness of colors. It is unrelated to vision. Because of the incidence, usually only boys are checked for possible color blindness. (1 out of 300 girls are color blind; 8 out of 100 boys.)

## WARNINGS OF POSSIBLE EYE PROBLEMS

### IN THE PRE-SCHOOL CHILD:

Behavior:

- Rubs eyes excessively
- Shuts or covers one eye, tilts head or thrusts head forward
- Clumsiness (inappropriate to age or developmental level); stumbles or trips over small objects
- Sits very close to T.V.
- Blinks more than usual or is irritable when doing close work
- Withdrawn behavior, holding objects close, apparent "retardation"
- Is unable to see distant things clearly
- Squints eyelids together or frowns often
- Inordinate amount of anxiety when a given eye is covered (when compared to performance when the opposite eye is covered)
- Failure to respond to a bright light or movement in the visual field
- Abnormal sensitivity to and discomfort from light
- Avoidance of interesting children's T.V. programs
- Disinterest in watching T.V.

Appearance:

- Crossed eyes; obvious appearance of turned eye
- Crossing of eyes at any time, even if intermittent
- Abnormal movements of eyes
- Physical appearance different between eyes (or disparity in the size between the two eyes)
- Any abnormality in the physical appearance of the eye:
  - white matter in either pupil
  - haziness in colored part of eye (iris)
  - a grayishness of the cornea of either eye associated with globes that appear to be larger than normal for the child's age
- Inflamed eyes
- Persistent tearing after the child is eight months or older
- Red-rimmed, encrusted, or swollen eyelids
- Recurring styes, or little white particles along the edges of the lids

Complaints:

- Eyes itch, hurt, burn or feel scratchy
- Cannot see well
- Headaches after prolonged eye use
- Car Sickness
- Blurred or double vision

### IN THE SCHOOL CHILD:

All of the above as well as:

Behavior:

- Has difficulty in reading or in other work requiring close use of the eyes
- Has difficulty in seeing chalkboard
- Holds books close to eyes (less than about 6 inches)

Complaints:

- Dizziness, headaches, or nausea following close eye work

## BAUSCH AND LOMB SCHOOL VISION TESTER

Bausch and Lomb Optical Company
635 St. Paul Street
Rochester, New York 14602

Description; This is a simple machine with a revolving drum into which three slides may be placed. The slides test visual acuity, near and far phoria. The acuity slides, though similar to the Snellen scale, include pictures of common objects, such as houses, star, birds, etc. The lines of the chart are graduated with regard to object size.
Advantages: This test is particularly appropriate for use with preschoolers because the child needs only to identify common objects. Testing may be done in limited space.
Disadvantages: Recognition of shapes and pictures is a prerequisite and a young child may be unable to verbalize his answers. The tester must be trained. The test concentrates on visual acuity and does not test color vision on other areas of vision.

## KEYSTONE VISUAL SURVEY TEST (USE WITH TELEBINOCULAR)

Keystone View Company
Meadville, Penna. 16335

### DESCRIPTION

This is a machine a child looks into which is equipped with a series of symbols on slides. There is a hand operated pointer for responding to directives such as "Touch the red ball" so speech is not essential. The machine is designed both for diagnosis and training.

### ADVANTAGES

There is a "Ready to Read Test" which shows if a child is ready to use his eyes for reading from books at the usual reading distance. The record forms are easy to analyze because they show the expected range of vision as well as those areas which are questionable. All testing is done using both eyes so the screening shows if there may be suppression of vision in one eye.

### DISADVANTAGES

The directions are sometimes confusing to very young children. The cost of the machine is moderately high.

## MICHIGAN JUNIOR VISION SCREENING TEST

The Good-lite Company
4426 West Madison Street
Forest Park, Illinois 60130

Description: The test chart has a movable "E" in the center surrounded by four simple pictures which serve as reference points. The "E" is moved in several directions so that the eyes alternately focus on each of the four pictures. The child indicates the position of the "E" by identifying the picture that the legs are pointing to. Training cards are given to the parents in advance in order to familiarize a child with the procedure.

Advantages: The use of pictures as reference points is a simple procedure and eliminates confusion of spatial relationships. This test is easily administered and requires a minimum of space.

Disadvantages: This tests only for visual acuity. The Michigan State Health Department reports successful screening of 3 and 4 year olds with this test procedure. There are relatively few disadvantages.

## MODIFIED CLINICAL TECHNIQUE (MCT)

This is a screening plan, used extensively in schools in California, which resulted in the highest accuracy for referrals of any screening system yet available. Details are available in what is known as the ORINDA STUDY*, a description of the techniques developed by a group of optometrists and ophthalmologists in California.

DESCRIPTION: Five tests are used

1. Distance Chart — Children indicate which direction the tails (or legs) of the E point on a chart (The teacher has trained them to do this before M.C.T.)(Rotating E at 10 feet for pre-school age children; Snellen Chart at 20 feet for school age children.)

2. Binocular Coordination — Cover test. Cover one eye and then the other (Have child look at object at 18 inches while first one eye and then the other is covered. Shows if there is muscle imbalance problem.

3. Refractive Error — Lensbar, special glasses, target 20 feet away. This is done by a doctor using the light reflex as a guide.

4. Measure of Color Vision - Standard American Optical Plates. (Boys only are tested)

5. Inspection of Interior of the Eye - done only when there is suspicion of pathology

M.C.T. is done on an assembly-line basis. 25 children may be tested in an hour; 10 children at a time for one test. The children wear name tags, and usually the teacher and mothers are on hand to assist. The cost is 60¢ per child.

ADVANTAGES:
High accuracy in referrals; no expensive equipment required; screen many children quickly; detects majority of eye problems.

DISADVANTAGES:
Requires use of eye doctors; requires some training of screening personnel; limited to geographic area where doctors are available; relatively expensive because of doctor's fees unless doctor volunteers services.

*A copy of the Orinda Study results is available from the University of California Press, Berkley, California, 94700.

## ORTHO-RATER MACHINE

Bausch and Lomb Optical Company
635 St. Paul Street
Rochester, New York 14602

Description: The term ortho-rater describes the revolving drum of this machine into which twelve slides are manually inserted. The slides are similar to those used with the Titmus screener. They test near and far visual acuity, heterophoria, i.e., the ability of both eyes to focus on a single point, depth perception and color vision. The machine is placed on a table which is adjustable to the height of the child. A scoring key is included in the testing material.

Advantages: The test requires a minimum of space. Near and far optical distances are automatically controlled and lighted.

Disadvantages: Verbal communication and recognition of objects are necessary for accurate testing. Failure may indicate lack of comprehension rather than visual deficiency. The tester must be trained.

## SNELLEN TESTING MATERIAL

National Society for the Prevention of Blindness
79 Madison Avenue
New York, New York 10016

Description: The Snellen test charts are available in a variety of formats - charts of letters, numbers, tumbled "E" and pictures. The symbols are organized in a linear fashion each line graded in terms of size. The test chart is posted at a distance of 20 feet - and each line size is rated at the distance it would be identified by a person with normal vision. Cover cards may be used to expose one symbol at a time. The child must identify the letter, number, picture or position of the E. If the E chart is used with a young child, he may identify the position of the E by turning his hand in the same direction or manipulate a card with the same E symbol. The smallest figure identified is taken as a measure of visual acuity. Acuity is recorded as a fraction - the numerator represents the testing distance and the denominator represents the distance at which the smallest symbol read could be identified by the normal eye.

## SNELLEN TESTING MATERIAL

Procedure: If a child wears glasses, he should first be tested with glasses and then without glasses. Test both eyes together and then the right eye and the left. A hand held occluder is placed before the eye not being tested. However, throughout testing, both eyes should remain open. A child should not be allowed to squint or narrow eyelids to see the chart.

Persons scoring 20/40 or poorer visual acuity in either eye should be referred.

Advantages: The Snellen testing material may be obtained at a reasonable price. There is little cost on maintenance of equipment. One may be easily trained to administer this test; a specialist is not essential. The Snellen E test is particularly successful with young children as it does not rely on verbal identification of objects on symbols. The window screener may be used to eliminate confusion. Children who fail may be easily re-screened a few days later.

Disadvantages: A child must be able to comprehend the verbal directions. If he responds with his hands on the cut out E symbol, he must be able to coordinate his hands or manipulate the card. If testing pre-schoolers, time must be allotted to familiarize the child with the various positions of the "E" symbol. The screening area must be prepared in advance in order to eliminate room distractions. The chart must be properly leveled on wall and the distance must be carefully measured. Lighting must be considered as glare, shadow, or bright lighting will affect test results. Reliance on the Snellen test alone fails to detect large numbers of children in need of vision care. The Snellen test does not test for other visual skills (on deficiencies) essential for normal visual operations.

# TITMUS VISION TESTER

Titmus Optical Company
1015 Commerce Street
Petersburg, Virginia 23803

Description: The Titmus Screener tests for color vision, stereo depth, acuity for right and left eye, vertical-lateral phoria (tendency of eye(s) to turn from normal position) reading distances and muscle balance. While the testing machine is portable and can be used on any table, it requires a source of electricity. It contains a revolving drum into which twelve slides may be inserted. The slides are correctly lighted from within the machine. The distance range is also self-contained and may be varied from twenty feet far point distance to fourteen inches near point distance. The machine is equipped with a pointer which can direct attention to specific objects on a slide and also a device for occlusion of right and left eye.
Pre-made scoring cards are included.

Slides of pictures and objects are specifically designed for use with retarded, kindergarten or first grade children.
An alphabet chart is used with upper grades.

Advantages: The slides are self-contained within the drum, therefore, there is no manipulation or scratching of individual slides. Once the equipment is assembled, it can effectively be used for mass screening. Test time per child is 2 minutes, 30 seconds. The accommodation for lighting and distances as well as the occluder, are contained within the machine. Adjustments and corrections can therefore be accurately controlled. The machine itself requires relatively little space and room lighting does not interfere with testing.

Disadvantages: The basic equipment, that is, the Titmus Vision Tester and the slides, are expensive. The tester must be familiar with the equipment and trained to operate it effectively. The directions of the testing procedure may be too complicated for a young child and failure may indicate lack of comprehension rather than visual deficiency.

## MEDICAL CONSIDERATIONS

It will be noted that CONDITIONS AFFECTING VISION under the section DEFINITION OF TERMS there are many affections which can result in a decrease in the ability to see. This ability to see is entirely subjective. The child who has never known what good vision is (for example, perhaps he has congenital cataracts, albinism, nystagmus, or high myopia) may be very confused when he learns that others are seeing and talking about things he cannot see at all or which look quite different to him. Yet, he has undoubtedly made adjustments which fit his own particular problem and may be able to function well in spite of limited vision.

Any specific part of the complicated eye structure can be affected, producing a specific kind of reduction in ability to see. These varied affections can be caused by a multitude of pathological conditions the etiology of which may be hereditary (i.e., ulcers), poisons (i.e., lead), tumors, traumas, and so on. Treatment for any defect, to be effective, must be directed to the cause. The general health of the whole child must be considered. For example, diabetes or a vitamin deficiency can markedly reduce visual acuity.

These comments related to pediatric ophthalmology barely scratch the surface. The screening process, complaints of the child, observations of the teacher or the parents, all must be followed up with professional examination, determination of cause, and prescription for remedial action. Beyond this, however, is the need for clear understanding by the parent, the teacher, and special education consultant, of the nature of the problem and the regimen to be followed for visual efficiency and for prevention of further loss.

When there is a disabling vision problem, there is need for team work with the eye specialist diagnosing, treating, prescribing and interpreting the nature of the specific vision problem, and the Consultant for the Visually Handicapped, based upon medical finding, planning needed educational and social modifications. Neither specialist can meet all needs alone; each specialist depends upon the other in order to give maximum help to the visually handicapped.

## FIRST AID FOR EYE PROBLEMS

SYMPTOM Pain or foreign body sensation.

TREATMENT Irrigation, preferably using sterile irrigating solution, but at least water as soon as possible after contact. Anyone may do this. See doctor as soon as convenient. Additional treatment - patching of the eye to avoid eye rubbing or physical contact.

SYMPTOM Chemicals or liquids in the eye.

TREATMENT Fast irrigation for as long as thirty minutes. Importance here is irrigation and keep irrigating, don't rush the patient to the doctor until the irrigation is continued for at least thirty minutes. Follow-up treatment with the doctor, although a nurse or anyone may do the irrigation.

SYMPTOM Pink eye or conjunctivitis.

TREATMENT Any physician may treat this, but, because it requires medication, must be done by M.D. (Conjunctivitis is not to be confused with a subconjunctival herorrhage which has a solid red appearance and usually covers a good part of the white of the eye on one side. This can be due to trauma or sudden movements, i.e. coughing, sneezing, vomiting, lifting heavy weights, etc. There is no treat ment for this condition. It is self-limiting and painless.)

SYMPTOM Sudden photophobia or light-sensitivity.

TREATMENT Consult with doctor becuase of the possibility of iritis.

SYMPTOM Injury or blow of any kind.

TREATMENT Requires attention preferably by a doctor, although a nurse may irrigate to get any foreign materials from the eye. Probably not an emergency unless severely painful. If suffering from severe pain and blurred vision, a doctor should be consulted as soon as possible.

SYMPTOM A black eye.

TREATMENT Should be examined by a doctor who can look inside the eye within a reasonable time after initial injury. This is due to the possibility of a retinal detachment in a severe blow to the eye.

## "HELPERS" FOR THE VISUALLY HANDICAPPED STUDENT

The student's eye problem, what corrective lens or surgery is available, his utilization of what sight he has, his feelings about his handicap, and the classroom environment are a few of the factors determining a child's classroom performance. Coupled with this, and under the guidance of the Consultant on the Visually Handicapped, Division of Special Education and Pupil Personnel, State Department of Education, or the Division for Services to the Blind, Department of Rehabilitation, are many "helpers":

1. SEATING
   Often this involves placing him in the front row in as much glare-free light as possible, but, often too, allowing him to decide where seating is most advantageous to the point of permitting a trial of different seating placements.

2. OPTICAL AIDS
   Whether hand held, stand supported or hatband type, the emphasis needs to be on whichever device offers the least distortion and the greatest clarity of image for the individual student.

3. EQUIPMENT
   Typewriters, tape (or cassette) recorders, Braille writers and talking book machines are important aids for speed and organization. However, they are aids and not replacements for reading, writing and thinking!

4. EDUCATIONAL MATERIALS
   Tactual materials and slight adaptations in existing classroom materials are valuable. Large print books are an important need of some students but complete dependence upon them is unwise if regular print can be read at all.

5. MOBILITY AIDS
   Canes, as a feeling-ahead - mapping-out device in getting about, may be helpful; guide dogs are sometimes used. A good sense of direction coupled with memory for placement of rooms and objects can be developed.

6. ADJUSTMENT
   The personality of the visually handicapped student, just as that of non-handicapped students, is critical to satisfactory adjustment. The two types of personality in a visually handicapped student which impede progress are found in the defensive, pseudo-independent student who denies the need for help, and the student, craving attention or using poor vision to excuse weak performance, who uses his handicap as a "crutch".

## THE IMPLICATIONS OF VISION LOSS ON EDUCATION

(Written by a teacher of the blind-multiply handicapped who herself once was partially sighted and now is blind)

Authorities in the field of education have estimated that as much as 90 percent of the information learned by an average individual comes to him through his eyes. If this estimation is anywhere near accurate it is easy to infer what a tremendous impact a severe or total loss of vision will have on the learning process. It is apparent that modification in the learning situation must be made as quickly as possible to insure that the child is enabled to make the utmost use of remaining vision and to substitute learning experiences through the auditory and tactile channels in the most efficient manner possible, or the child will start to fall behind in his intellectual and social development at an alarming pace. Decreased activity and psychological strain resulting from visual loss can be undermining factors to overall physical fitness. As soon as a teacher or parent of a child realizes that the youngster is to have a permanent vision loss which makes the use of regular print and blackboard work a strain on the learning process, guidance from the Special Education Division in Montpelier should be sought. Time is of the essence. Pretending that a problem does not exist, or wishfully hoping that "time" will take care of it only adds to the problem. The Division of Special Education, Department of Education, Montpelier, Vermont 05602 has Consultants for the Visually Handicapped available to schools all over Vermont.

One of these consultants, teachers, both parents, and, whenever feasible, the child himself, should all play a part in decisions involving major changes in his educational program.

For many years the State of Vermont has been paying tuition to send its blind and partially sighted children to out of state residential schools. Many youngsters have received excellent academic and prevocational training at such schools. However, there has been a feeling on the part of some that being segregated with other visually handicapped children and staffs working exclusively with the handicapped is not the best possible situation for a youngster to learn how to adjust and earn a living in the competitive, sighted world. Along with the nation-wide trend to keep more and more handicapped children in the public school setting, Vermont has more and more partially sighted and blind youngsters in regular classrooms receiving special services through the Division of Special Education. They are thereby enabled to participate in a more normal and varied home and social life.

## THE PARTIALLY SIGHTED STUDENT

For many years it was popularly believed that children with poor vision should "save" their remaining sight. Today, except in a few rare cases where an ophthalmologist has so designated, it can be assumed that extensive use of limited vision will improve rather than diminish its effective use. Much can be done to help the partially sighted child to feel comfortable in the classroom, such as allowing him to select his own seat, which will probably be near a window, near the chalkboard, and near a close friend. When an unusual tilt of the head or posture actually aids the child in using vision more effectively, this posture should be tolerated by teachers and parents, but it should be realized that this is an additional strain on the child and may indicate that work loads requiring this abnormal strain should not be too lengthy. Good lighting, large print books, dark lead pencils, dark ink pens, heavy lined paper can all be used to help reduce this strain for many partially sighted youngsters. Special magnification may prove helpful, but should be used only after consulting with a specialist in this field.

Vast recorded material both on records and cassette tapes can be borrowed from the Regional Library of Congress, Albany, N.Y., and from Recordings for the Blind, Inc. of New York City and has proven a tremendous help to both partially sighted and blind youngsters as a resource for supplemental classroom material and entertainment. Typing skills can be learned at an early age and special arrangements should be made for the child to receive help in acquiring these skills either in the school or home setting. With some modification and use of devices adapted especially for use by those with limited or no vision, art, music, physical education, home economics, shop programs , mathematics, science and language programs can be adapted to be meaningful to the visually handicapped student who should not be excluded from any of these courses purely on the basis of a visual handicap.

## THE BLIND CHILD

There are many who feel that although early integration into regular classes is desirable for the totally blind child, there must be a period of time spent in a special setting, whether in a residential school or a resource room in a public school, where the skills of Braille, typing and the ability to orient oneself and to move about easily in familiar surroundings, can be acquired. Training for independent travel in new surroundings, whether it be with a guide dog or a white cane, is usually delayed until middle teens. There is a difference of opinion among professional workers in the field of rehabilitation of the blind as to which of these methods of travel is better. The decision as to which method would best meet the needs and temperament of the blind person, and where these techniques would best be acquired, should be made only after consulting with an unbiased professional.

Although recorded material plays a larger and larger role in education of the blind, it is still desirable for the youngster who cannot use print, to have a working knowledge of Braille to insure proper spelling, a method of personal note-taking, and concentrated, detailed study required for such subjects as mathematics, science, and foreign languages. There are volunteer groups throughout Vermont who devote many hours of their skilled time in transcribing textbooks and other materials needed by blind students attending regular classes. Whether the blind child acquires his training in Braille reading and writing in a residential school, a resource room in a public school, or by tutoring at home, every effort should be made to return him to the regular classroom as soon as possible. It can be of great help to the blind youngster to go from room to room or work along in classroom activities with sighted friends, but he should be encouraged to be as independent as possible and to have many friends instead of being overly dependent on one friend.

Although the blind youngster should have as much of his reading material as possible either recorded or in Braille, it may be necessary for some assignments to be read to him. There are funds available from the Special Education Division to pay for such service. As much as possible the blind student should select his own readers and make arrangements for the time and place of the reading service. Some blind students have found that the best students in the class do not always make the best readers, but prefer an average student who may need to go a slower pace himself and may benefit from having a set time and place to do an assignment and someone with whom he can discuss the assignment. Every encouragement should be given the blind student for accepting the responsibility for making his special needs known and making arrangements for them to be met.

## THE VISUALLY HANDICAPPED CHILD WITH OTHER PROBLEMS

Unfortunately children with visual handicaps may have other handicaps such as retardation, loss of hearing, orthopedic or speech problems. It is obvious that these youngsters are going to need more specialized help and are not going to integrate into the regular classroom as easily as the child with the single handicapping condition of visual loss. In a response to meet the needs of these multi-handicapped children three different programs have been developed in Vermont.

For several years, the Brandon Training School has attempted to meet the unique needs of their retarded youngsters with visual problems by assigning them for periods of special attention from activity leaders or foster grandparents.

The Vermont Association for Crippled Children in Rutland is in its third year of a program for deaf-blind children. When these children live too far from Rutland to remain in their own homes they are placed in foster homes during the school week, but as often as possible return to their own homes. One of the outstanding features of this program is the guidance offered to parents, foster parents, and the close coordination between the child's home, foster home and school experience.

The Rutland Public School has had a class for multi-handicapped blind children for the past five years. This program has served as an evaluation and pre-vocational training experience for youngsters from the entire state. When foster placement is needed to enable these children to attend this class it is paid for by the Division of Special Education and supervised by the Vermont Association for the Crippled Children.

## THE PRE-SCHOOL BLIND CHILD

A blind child has the same needs and drives as any normal child. His impairment superimposes additional needs. Parents of a blind baby need to be helped to know what to expect at various stages of the blind child's growth and development. Parents have the additional problem of understanding their own attitudes toward their handicapped child. The tendency toward over-protection, over-indulgence, if not understood, will adversely affect the child's behavior and growth. The importance of providing plenty of loving, a feeling of security, additional stimulation to make up for the lack of one of the senses, all must be recognized at the earliest possible age of the infant. A home visitor can bring to parents help in problem areas according to the particular needs of each child. Relieved of some of their worries, and given guidance on suitable activities, parents can give their blind child every opportunity to develop normal speech, motor, social and self-help skills at the appropriate age.

Medical services, counseling and guidance, and special techniques are provided to parents of pre-school blind children who are known to the Division for the Blind and Visually Handicapped. Special Education enters in at Kindergarten level or earlier if parents desire early educational planning.

A service, started in the fall of 1972, combines the skills of the Division for the Blind and/or the Consultant for the Visually Handicapped from Special Education with those of social worker, speech, physical and occupational therapist at the Vermont Association for the Crippled in Rutland, to offer monthly counseling to parents of handicapped infants so questions may be answered and parental attention focused on activities which foster development.

## A PARTIALLY SIGHTED STUDENT WRITES FOR FELLOW STUDENTS

(This girl is in high school. She has no vision in one eye and limited vision in the other. In order to read she must use telescopic lenses which look like mini-binoculars.)

1. HOW DO YOU EXPLAIN TO CLASSMATES AND PLAYMATES ABOUT VISUAL LIMITATIONS? I only explain to my classmates who were very good friends. I always explained to my teachers, and I figured most kids just took it for granted that I couldn't see as well as they could because I used to go stand next to the blackboard so I could see. I always figured the kids were too scared to ask or I was too scared to tell the people I didn't really know or they just weren't interested. Only lately have I begun to talk to more people about my eyes because I find they are as embarrassed as I might be and if I can explain to them it will ease both our minds. It's much better to have people know than it is to just pretend it's not there because I can't see as well as most people and it will in most cases help me only if people around me understand my vision problems.

2. WHO DOES THE EXPLAINING IF IT IS DONE? My parents and I have done most of the explaining to teachers. I've always felt I was the one with the problem so I was the best qualified to explain it.

3. WHAT INFORMATION DOES A VISUALLY HANDICAPPED CHILD WANT OTHERS TO HAVE? I would want others to know everything they want to know about my vision. Approximately how much I can see at a distance, what size print I can read, how close I have to be to read something, what things affect my vision, like lighting, shadows, when I need help and when I don't need it, what kind of help people can give me and any way that I can help them have a better understanding of a vision problem.

4. WHAT KINDS OF HELP WOULD A VISUALLY HANDICAPPED PERSON WELCOME FROM OTHERS? The best help that anyone can give is understanding. In school I used to have a very good friend who, when she would copy her own notes or questions off the blackboard, would make me a carbon copy. Teachers used to give me extra time to finish quizzes and tests. That was very helpful. But as I said "understanding" is the best help because then the person knows you can't read the sign, or tell who just went by in the car, or read the phone book, or read the subtitles on a film, or millions of other things that a visually handicapped person would sometimes hesitate at asking for help but would gladly welcome it.

5. WHAT HAVE ADULTS OR CONTEMPORARIES DONE TO YOU WHICH HELPED? My parents have taken me to every doctor they could think of. They have given me glasses and contact lenses. My mother has almost gone through high school again reading many of my assignments to me thus saving me a lot of time and trouble. My father has typed many reports which I wrote first. They have both stayed up late helping me with my homework. They have brought me places and picked me up hoping I would have more time to work on school work. They have made every effort to try and understand my vision problem spending both time and money to make it easier for me. Teachers have tried to help by giving me extra time on assignments. People from the Division for the Blind have visited me and talked with my parents and me about equipment and methods that might be helpful. Most people have never hesitated at trying to help me.

6. WHAT HAVE ADULTS AND CONTEMPORARIES DONE WHICH HURT? The thing which I think hurts a visually handicapped person is when people, in an attempt to help the person, pity the person and treat him or her like they can't do anything.

7. HOW WOULD YOU HAVE CHANGED THINGS IN SCHOOL OR IN PLAY WHICH COULD HAVE HELPED MAKE YOU MORE COMFORTABLE WITH YOUR VISION HANDICAP? The only thing I think I should have done was to do more explaining to people so there would be a better understanding of my vision problem. Then maybe some of those embarrassing moments when you run past first base, or start talking to someone you think is someone else, wouldn't be so bad.

8. WHAT BOTHERS YOU THE MOST ABOUT YOUR VISION PROBLEM? One thing that bothers me is that my eyes look funny. Other than that I sometimes think that my vision adds to my personality and my relationships with other people.

## HOW PARENTS CAN HELP

(Written by the mother of a blind child now grown and preparing for self support.)

"Dr. Jones, what does your examination show?"
"I'm sorry, there is only one way that I can tell you. Your child is blind!!"

For a parent, many who perhaps have never seen or been in contact with a person who is blind, this comes as a great shock. The realization that this child you have awaited with such joy will not be able to see you, to see your smile of love, the many beautiful things of God's World. How painful and with heavy hearts you finally acknowledge this fact!

Acceptance of this takes a great deal longer. There may be a rare parent who can manage to accept this alone. However, in most cases, this is the time to turn to all help available - your doctor, minister or priest, professionals and agencies who work in the field of the blind and visually handicapped and to parents who have already had this experience and are eager to share this with you.

Today you are not alone. All of these people, their knowledge, their concern and compassion are there to help you, your family, and your child.

To successfully rear a blind child and guide him or her to a happy, independent life requires a great deal of love, courage, patience, tolerance, self-discipline and, last but not least, a great deal of faith in God.

The rewards of such are many. In helping your child to become aware of the beautiful world and all therein, you yourself become aware of so much that you never realize existed.

Each child who is blind is different as is every normal child, and is a unique individual as well. It would be impossible in this small space to give all of the many methods of achieving the everyday things of life which must be learned.

Many, many years have passed since I was told our daughter was blind. She has learned the fundamentals of school; she reads with ease using her advanced Braille skills; she types, knits, cooks and irons; she has managed all self help skills except for setting of her hair which seems hardest of all; she sings solo parts in church; she not only gets around, having had mobility training, but she now flies alone from Little Rock, Arkansas, where she is having work training, to Boston; she swims and dances with grace. Looking back on all of this, and there is still far for her to go, two things of importance stand out: first, a child cannot grow up and improve until there is acceptance of him or her as a blind child by a parent, and secondly, of all of the times when special care is important, the very earliest years - from birth to two or three years - are the most critical. Therefore the suggestions which are made relate mainly to these very early years.

Because a blind child requires a great deal of stimulation to make up for lack of sight, the senses of touch, sound, sensation of movement, and smell have to be used and used and used. We are listing a few hints for young children. We cannot impress too strongly the need for additional love and cuddling of the young blind child who cannot see facial expressions which mean so much to the baby who sees.

1. Give warmth and love from all members of family. When very young, change position frequently to encourage movement.

2. Talk to and with child frequently speaking slowly and distinctly.

3. Explain what you are doing.
   I am going to pick you up.
   I am going to put you down.

4. Place hands on toothbrush so that he feels the motion and tell him you are brushing his teeth. Later, he will place the toothpaste or powder in his hand and learn to do this alone.

5. When giving bath tell him you are putting him in the water - name parts of the body as you wash his hands, face, etc. Include floating toys during bath time. Teach him good bathroom habits.

6. Place hand on cup and spoon when feeding and drinking. Let him feel the motion so that he may later feed himself. Name the foods that he is eating or drinking.

7. When being dressed, name the articles of clothing and the part of body where each belongs. Dress in simple clothes which will be easy to learn to put on and take off.

8. Attach safe toys (both noisy and those of different shapes and textures) to the crib so that he will learn to explore and enjoy toys. If child is not in a crib, allow him time to explore on floor. Teach him names of objects about the house.

9. Let the child feel your face, jaws, lips and throat to encourage speech. Name the parts of face when doing so. Teach him the parts of his own face.

10. Teach him games that encourages use of the body (clap hands, stamp feet, etc.) Musical games are fun and encourage listening and movement, as well as learning to follow simple directions.

11. At all times try to stress:
    up - down; right - left; forward - backward; in front of - behind you; above - below; over - under - between. This is necessary in gaining successful mobility and orientation. Have your child take your arm. Lead rather than push or pull and the motion of your body will tell him or her what to do. Teach him to walk with head erect. Identify whether walking on cement, bricks, dirt, grass, wood, rugs, sand.

12. Develop sense of smell so that he may identify familar odors and to associate with origin. Let him smell bottles with different scents such as ammonia, vanilla, alcohol. Talk about the smell and tell what it is called. Take him on field trips to a grocery store, laundry, bakery, garage, barber and beauty shop, barn, hospital, church. Allow your child to become a part of his community as early as possible.

13. Try not to be overprotective of your child. Help him to overcome his fears.

14. Keep in mind that the blind child does not see your smile as such, but he hears it through your voice and feels it through your touch. He will soon learn to smile back.

There are publications to help you with specific problems which are listed at the end of this booklet. Subjects covered are:

- Family Life with the Blind Child
- Mobility Training
- Body Image
- Feeding Training
- Toilet Training
- Social Acceptance
- Sensory Training
- Auditory Training
- Spiritual Guidance
- Education
- Vocational Guidance
- Recreation

# VISION SERVICE AGENCIES IN VERMONT

## VISION SCREENING

Every child in Grades 1,3,5,7,9 and/or 10, as required by Vermont Statute, has vision screened each year by trained volunteers, school, Public Health or Home Health Care Agency nurses. When volunteers do the screening, appropriate follow-up is provided by school, Public Health or Home Health Care Agency nurses.

Well Baby Clinics, pre-school round-up, Day Care, Headstart and Kindergarten programs sponsored by community, school district, or public agency and done by school, Public Health or Home Health Care Agency, or trained volunteers also conduct vision screening.

Amblyopia Clinics for children 3-5 years are sponsored by community groups with the assistance of Public Health Nurses, Vermont Department of Health.

## SERVICES AND VISUAL AIDS

VERMONT DEPARTMENT OF LIBRARIES, Special Services Unit, Montpelier. Provide large print books, talking-books, cassette tapes, reading aids. Any visually handicapped person who is unable to read conventional print for a reasonable length of time is eligible.

VERMONT DEPARTMENT OF REHABILITATION, Division for the Blind and Visually Handicapped, Montpelier. Services available for all ages. Provides mobility training, medical counseling, parent counseling for their blind child, adjustment and training for independent living.

- COMMUNICATIONS AIDS - Includes guides for handwriting, typewriters, Braille-writers and tape recorders.
- HOMEMAKING AIDS - Include kitchen aids for cooking, marking aids for canned goods, timers, clocks, watches, serving aids, carpenter's tools.
- RECREATION AIDS - Include talking book machines, tape recorders, games, handicrafts, recorded books and music.
- OPTICAL AIDS - Include magnigiers of a great variety.

## EDUCATION

VERMONT DEPARTMENT OF EDUCATION - Division of Special Education and Student Personnel, Montpelier

Supervises and funds residential programs for visually handicapped students; provides itinerant supportive services to public schools, school age children and their parents; coordinates educational planning for pre-school age children and pre-vocational planning for high school students with the staff of the Division for the Blind and Visually Handicapped.

VOCATIONAL REHABILITATION - Division for the Blind and Visually Handicapped, Montpelier

Counseling, guidance, physical restoration, re-training for suitable employment and job placement.

## FINANCIAL ASSISTANCE WITH EYE EXAMS, LENSES and/or GLASSES

Knights Templar Eye Foundation, P.O. Box 91, Rhinebeck, New York.(must be sponsored by a Templar) - all Vermonters, all ages.

Lions Club - School children only.

Medicaid - Vermont Dept. of Social Welfare, Montpelier, Vermont - glasses for children under age 6 if financial need established.

Vermont Association for the Blind - contact Dr. Stuart S. Corbin, Box 3027, Burlington, Vermont - all ages, priorities given to children and eye emergencies.

Vermont Department of Rehabilitation, Division of Blind Services and Visually Handicapped, Montpelier, Vermont - Eye examinations, treatment and/or glasses for diabetics and persons with severe vision loss.

Vermont Department of Rehabilitation, Vocational Rehabilitation Division - For those over 16 with visual problem related to vocational handicap.

Salvation Army - Offices - Barre, Burlington and Rutland.

There are some local resources such as P.T.A., Rotary Club, Home Demonstration Clubs - dependent on funds available.

FINANCIAL ASSISTANCE FOR SURGERY, PROSTHETIC APPLIANCES, OPTICAL AIDS

Knights Templar Eye Foundation, P.O. Box 91, Phinebeck, New York (must be sponsored by a Templar) - All Vermonters, all ages.

Medicaid - Vermont Department of Social Welfare, Montpelier, Vermont - All ages if eligible for Title XIX.

Medicare - Health, Education and Welfare Social Security Administration - For those over 65. Main offices in Burlington, Montpelier and Rutland.

Vermont Dept. of Rehabilitation - Division of Blind Services and Visually Handicapped, Montpelier, Vermont.

FINANCIAL ASSISTANCE FOR SUPPORT

The Department of Social Welfare provides money grants for persons who are legally blind and in economic need through its program of Aid to the Aged, Blind and Disabled.

SERVICES FOR THE MULTI-HANDICAPPED BLIND

VERMONT DEPARTMENT OF HEALTH, Child Development Clinic, Burlington provides medical evaluation and planning for multi-handicapped blind children.

VERMONT DEPARTMENT OF MENTAL HEALTH, Brandon Training School, accepts blind-retarded children and provides training suited to their special needs.

VERMONT DEPARTMENT OF REHABILITATION, Division for the Blind and Visually Handicapped, Montpelier provides evaluation and planning for pre-school handicapped children through the use of specialized agencies such as the New England Center for the Deaf-Blind (At Perkins School for the Blind, Watertown, Mass.), the Boston Center for Blind Children, and through its own staff home visiting.

VERMONT ASSOCIATION FOR THE CRIPPLED, Rutland works with the deaf-blind in its Center, the class for the multi-handicapped blind in the Rutland Public Schools and the deaf-blind at Brandon Training School.

## APPLICATION FOR VISION SERVICES

Note: Sample forms for the Division for the Blind and Visually Handicapped and the Vermont Association for the Blind are on succeeding pages. Each specifies information needed in a referral.

FOR ALL OTHER APPLICATIONS, A REFERRAL COULD RESULT IN QUICKER ACTION IF IT INCLUDED:

- Name of child and birthdate
- Names of parents or legal guardians
- Home address of child and telephone number if one is available
- Description of the service being requested
- History information about visual handicap if available
- Data on any screening done, symptoms, etc. if available
- Data on family income if available
- Name, connection (nurse, teacher, social worker, etc.), address, telephone number of referring agent

Any school child with a vision problem requiring educational modifications of any kind may be made to the Division of Special Education and Pupil Personnel via the local Superintendent of Schools.

DIVISION FOR THE BLIND AND VISUALLY HANDICAPPED
Department of Rehabilitation
128 State St., Montpelier, Vermont

## APPLICATION FOR SERVICES

Name and mail address _____

With whom do you live? _____

Directions for reaching home _____

_____ Telephone No. _____

Date of birth _____ Place _____

Name of eye Doctor _____

Date of latest eye exam _____ May we ask Doctor for a report? _____

Can you see to read newspaper print? _____ Headlines? _____
Can you see to count your fingers when held at arm's length? _____
Can you tell light from dark? _____ Can you distinguish faces? _____

How old were you when your sight failed:
In right eye? _____ In left eye? _____ Do you wear glasses? _____

Check services you are interested in:

_____ Talking Book machine

_____ White cane

_____ Braille instruction

_____ Medical problems

_____ Handwork

_____ Aids for daily living

_____ Help with blind baby

_____ Education for blind child

_____ Financial assistance

_____ Glasses or magnifiers

_____ Other _____

Vocational Rehabilitation Services:
(To help disabled persons achieve some form of gainful activity including self-employment and homemaking.)

_____ Vocational counseling

_____ Vocational training

_____ Corrective medical or surgical treatment

_____ Job placement assistance

Social Security No. _____

Signature of applicant _____

Source of referral _____ Date _____

# Vermont Association for the Blind, Inc.

P. O. Box 3027, Burlington, Vermont 05401

## APPLICATION FOR AUTHORIZATION FOR VISION CONSERVATION

ATTENTION: In order for this application to receive proper consideration it is necessary that it contain sufficient information to give a clear understanding not only of the client's eye problem and financial circumstances, but also of the general physical health and the total family situation. This form is designed to provide the basic information needed. If you believe further information would be helpful please elaborate by a supplemental page.

*ALL questions must be answered and signed by person referring applicant.*

---

Date.....

Name: (one (client) (only ) Mr. / Mrs. / Miss / Master ..... Age .....
Last First Middle

Mailing Address.....Town.....County.....

Occupation of applicant (student, housewife, mechanic, etc.).....

Parents' Name (if applicant is a minor).....

Has service been given applicant previously? Yes:..... No:..... Date:.....

If yes – what service?.....

Describe in your own words patient's eye or vision problem.....

.....

.....

If for replacement of broken glasses: Specify frames and/or lenses .....

Date of last eye examination: .....

State briefly why family cannot supply needs .....

.....

.....

State full name and address of Ophthalmologist or Optometrist preferred (specify only one). VAB reserves the right to select the Doctor.

.....

.....

*A self addressed and stamped return envelope will be appreciated.*

PLEASE CONTINUE ON OTHER SIDE

---

For VAB office only

Approved:

Authorized:

Is applicant or any member or members of the immediate family gainfully employed? Yes..... No..... If yes give names, relationship, and take home pay.

If client or family wage earner is disabled, what is the nature of the disability?

Itemize all sources of monthly income with the amounts from each.

| | AMOUNT | AMOUNT |
|---|---|---|
| Aid to the Aged | Family..... | Applicant..... |
| Aid to the Blind | Family..... | Applicant..... |
| Aid to the Disabled | Family..... | Applicant..... |
| Aid to Needy Family with Children | Family..... | Applicant..... |
| Court Order for Support | Family..... | Applicant..... |
| Social Security | Family..... | Applicant..... |
| Unemployment Compensation | Family..... | Applicant..... |
| Monthly Income other than wages | Family..... | Applicant..... |

Numbers of persons dependent on above income. Adults.....Children.....

State ages of Children .....

If applicant or family rents their home what is monthly charge?.....

If applicant or family owns or is buying their home what is the monthly charge?.....

Debts owed other than mortgage

| To Whom | Balance | Monthly Payments |
|---|---|---|
| | | |
| | | |

Any other pertinent information.

Signature of Applicant (or parent if a minor) .....

Signature of referring person.....

Position and Address .....

Agency represented & address .....

Mail to: Vermont Association for the Blind, Inc.
P. O. Box 3027
Burlington, Vermont 05401

## DEFINITION OF TERMS

### GENERAL TERMS

| | |
|---|---|
| Accommodation: | The adjustment of the eye for seeing different distances, accomplished by changing the shape of the crystalline lens through action of the ciliary muscle, thus focusing a clear image on the retina. |
| Binocular Vision: | The ability to focus the two eyes simultaneously on the same object and to fuse the two images into a single image which gives a correct interpretation of its solidity and its position in space (fusion). |
| Blindness: | In the United States, the "legal" definition of blindness is: central visual acuity of 20/200 or less in the better eye after correction; or visual acuity of more than 20/200 if there is a field defect in which the widest diameter of the visual field subtends an angle distance no greater than 20 degrees. |
| Central Visual Acuity: | The measurement of the ability of the eye to perceive the sharpness of objects in the direct line of vision. |
| Congenital: | Present at birth. |
| Depth Perception: | The ability to perceive the solidity of objects and their relative position in space. |
| Field of Vision: | The entire area or field which can be seen without shifting the gaze. |
| Focus: | Point to which rays are converged after passing through a lens; focal distance is the distance rays travel after refraction before focus is reached. |
| Light Perception: | (L.P.), ability to distinguish light from dark. |
| Near Vision: | The ability to perceive distinctly objects at normal reading distance, or about fourteen inches from the eyes (usually less for children). |
| Oculus Dexter: | Right eye (O.D.). |
| Oculus Sinister: | Left eye (O.S.). |
| Oculus Uterque: | Each eye (O.U.). |
| Partially Seeing Child: | For educational purposes, a partially seeing child is one who has a visual acuity of 20/70 or less in the better eye after the best possible correction and who can use vision as his chief channel of learning. |
| Peripheral Vision: | Ability to perceive the presence, motion, or color of objects outside of the direct line of vision. |

| | |
|---|---|
| Prostheses: | An artificial substitute for a missing eye (or other missing part of the body). |
| Refraction: | The bending of the rays of light as they pass through media of different density. |
| Stereoscopic Vision: | Ability to perceive relative position of objects in space without such cues as shadow, size and overlapping. |
| Visual Perception: | Interpretation by the brain of what is seen. |

SPECIALISTS IN VISION

| | |
|---|---|
| Itinerant Teacher: (Rural areas) | A qualified teacher of the visually impaired who travels from school to school to work with visually impaired children who are enrolled in regular grades. The itinerant teacher furnishes special materials, instructs the regular teacher in their use, and counsels visually handicapped students in respect to school adjustment. |
| Oculist or Ophthalmologist: | A physician - an M.D. - who specializes in diagnosis and treatment of defects and diseases of the eye, performing surgery when necessary or prescribing other types of treatment, including glasses. |
| Optician: | One who grinds lenses according to a prescription, fits them into frames, and adjusts the frames to the wearer. |
| Optometrist: | An optometrist (Doctor of Optometry or O.D.) is educated, trained and state-licensed to examine eyes and related structures to determine presence of vision problems, eye diseases or other abnormalities. He prescribes and adapts lenses or other optical aids and may use vision training when indicated to preserve or restore maximal efficiency of vision. |
| Peripatologist: | A professionally trained person who teaches orientation and mobility to blind individuals. |
| Resource Room Teacher: (Urban area) | Qualified teacher of the visually impaired where the child is assigned to the regular class but goes to a resource room for special tutoring and special materials as needed. |

CONDITIONS AFFECTING VISION

| | |
|---|---|
| Albinism: | An hereditary absence of pigment in the eyeball, as elsewhere in the body. As a result of this, vision is deficient. |
| Amblyopia: | Poor vision without apparent disease of the eye. It may be congenital or acquired - often from lack of use. |
| Aniseiknoia: | A condition in which the ocular image of the object formed in one eye differs in size or shape from that of the other eye. |

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| Aphakia; | Absence of the crystalline lens of the eye. |
| Asthenopia: | Eye fatigue caused by tiring of the internal or external muscles. |
| Astigmatism: | Faulty vision which results when light rays are not brought into focus at a point on the retina due to different degrees of the curvature of the cornea. |
| Cataract: | Any opacity of the crystalline lens, or its capsule. There are all degrees, many types and various causes. |
| Color Deficiency or Color Blindness: | An inherent deficiency in color perception. There are various degrees and types, depending on colors. |
| Conjunctivitis: | Inflammation of the conjunctiva (mucus membrane lining the eyelids and covering the white part of the eyeball). |
| Corneal Ulcer: | An inflammation of a part of or the entire cornea. The healing process often produces scar tissue which is opaque and may interfere with vision. |
| Dyslexia: | A term commonly used to refer to non-readers. It more accurately pertains to mentally able children experiencing school problems because of trouble in a language area - Mathematics, Reading, Spelling or Writing. Problems in interpretation of what is seen may be a factor rather than a visual acuity deficit. |
| Eye Dominance: | Tendency of one eye to assume the major function of seeing, being assisted by the less dominant eye. |
| Glaucoma: | Glaucoma is an eye disease characterized by pressure within the eye due to faulty drainage. Resultant damage, if untreated, may produce deficits in the fields of vision. |
| Hyperopia: | Farsightedness, an eye in which light rays are focussed behind the retina due to:<br>1. A relatively flat cornea<br>2. An eye which is shorter than normal<br>3. A combination |
| Keratitis: | Inflammation of the cornea. |
| Myopia: | Nearsightedness, an eye in which rays of light are focussed in front of the retina due to:<br>1. A cornea which is too highly curved<br>2. An eye which is longer than normal<br>3. A combination |
| Night Blindness: | A condition in which the sight is good by day but deficient at night and in faint light. |

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| Nystagmus; | An involuntary, rapid movement of the eyeball; it may be lateral, vertical, rotary, or mixed. |
| Presbyopia: | A physiological lessening of accommodation, usually beginning early in life but becoming apparent around the age of 40 in which the eye gradually loses its ability to focus on near objects, hence the need for glasses. |
| Retinitis: | Inflammation of the retina (innermost coat of the eye, formed of sensitive nerve fibers connecting the optic nerve. Corresponds to the film of a camera.) |
| Pigmentosa: | An hereditary degeneration and atrophy of the retina. There is usually misplaced pigment. |
| Retinoblastoma: | A maligant intraocular tumor. |
| Retolental Fibroplasia: | A disease of the retina in which a mass of scar tissue forms in back of the lens of the eye. Both eyes are affected in most cases and it occurs chiefly in infants born prematurely who receive excessive oxygen. |
| Rubella: | German measles. If contacted during the first 3 months of pregnancy it may cause a variety of handicaps (e.g. deafness, blindness, and/or mental retardation) in the unborn infant. |
| Strabismus: | Any condition in which one eye relative to the other does not line up to the object seen, i.e. if the right eye is fixating on an object, the left eye may turn out, in, up or down or even at an oblique angle, but does not line up with the same object which the right eye is looking at. |
| Strephosymbolia: | A disorder of perception in which objects seem reversed as in a mirror. A reading difficulty inconsistent with a child's general intelligence beginning with confusion between similar but oppositely oriented letter, (b-d, q-p) and a tendency to reverse direction in reading. |
| Stye: | Acute inflammation of a sebaceous gland in the margin of the eyelid, due to infection and usually resulting in the formation of pus. |

MEASUREMENT AND CORRECTION OF VISION

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| C, CC (Cum Correction): | With correction, wearing prescribed lenses. |
| Concave Lens: | Lens having the power to lengthen focal distance; also known as diverging, reducing, myopic or minus lens; denoted by the minus sign (-). Used for correcting myopia. |

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| Contact or Corneal Lenses: | Lenses so constructed that they fit directly on the eyeball; used for the correction of vision in cases having a cone-shaped cornea and for cosmetic reasons. Corneal lenses are also used after cataract (lens) extraction to replace the lens removed from the eye. They provide less distortion and image size difference from the other eye than spectacles would. |
| Convex Lens: | Lens having the power to converge rays of light and to bring them to focus; also known as converging, magnifying, hyperopic, or plus lens, denoted by the plus sign (+). Used for correcting farsightedness, or "old sight" or presbyopia. |
| Diopter: | Unit of measure of lenses. The refractive power of a lens with a focal distance of one meter. A two diopter lens has focus of one-half meter. |
| Jaeger Test: | A test for near vision using various sizes of type. |
| Microscopic Glasses: | Magnifying lenses arranged on the principle of a microscope, occasionally prescribed for persons with very poor vision. |
| Ophthalmoscope: | Instrument for examining interior of the eye. |
| S, SC (Sine Correction): | Without correction; that is, not wearing glasses. |
| Snellen Chart: | Used for testing central visual acuity. It consists of lines of letters, numbers or symbols in graduated sizes drawn to Snellen measurements. Each size is labeled with the distance at which it can be read by the normal eye. Most often used for testing vision at distance of 20 feet. |
| Tangent Screen: | A large black or gray curtain supported by a framework on which the normal central field and blind spot have been lightly outlined. This instrument is used for measuring the central field of vision. |
| Telescopic Glasses: | Magnifying spectacles founded on the principles of a telescope; occasionally prescribed for improving very poor vision which cannot be helped by ordinary glasses. |
| Tunnel Vision: | (Also sometimes referred to as gun barrel vision): Contraction of the visual field to such an extent that only a small area of central visual acuity remains, thus giving the affected individual the impression of looking through a tunnel. |

STATE OF VERMONT

Laws, Regulations, and Practices Concerning Prevention of Blindness

I. Testing Sight and Hearing

Title 16, Chapter 31, PP. 1422

(b)---"The superintendent shall also cause a qualified person to test the vision of all pupils under his supervision in grades 1,3,5,7, and 9 or 10 , each year, using tests recommended by the State Department of Education in consultation with the Department of Health, and to keep a record of such tests according to the instructions furnished and to notify in writing the person having legal responsibility for a pupil who is found to have defective vision."

(c) "the superintendent shall also cause to be tested the sight of any pupil who appears to have defective vision, at any time there appears to be a need for such test."

(d) "the superintendent shall report the results of the ------ vision tests to the Commissioner of Education.

(e) "No child shall be obliged to submit to any test ------ whose parent or guardian objects to the same in writing."

II. Eye Protection in Industry

Title 21, Chapter 3, PP. 104

Safety Regulations -

The Commissioner shall make such regulations relating to inspections as he deems necessary to secure the safety of and afford protection to employees.

Regulations Promulgated for EYE PROTECTION

-----adequate safety goggles and glasses must meet standards, must be worn in operations of grinding wheels, chemicals, welding, drilling, clipping, driving, stone blasting and breaking, foundry, and wood-working operations, and must be provided by the employer----------

Act 205 of the 1972 General Assembly requires that as of July 1, 1973 the State of Vermont will develop and enforce occupational safety and health under the Occupational Safety and Health Act of 1970 (P.L. 91-596) of the U.S. Congress. This Act also includes standards for glasses and frames for all eye glasses.

III. Ophthalmia Neonatorium

Title 18, Chapter 21, PP. 1010

Ophthalmia Neonatorium: penalty

"The Commission shall make and enforce such rules and regulations for the quarantining and treatment of cases of veneral disease reported to it as may be deemed necessary for the protection of the public."

Laws and regulations include reporting, testing for and treating syphillis and gonorrhea.

V. Vaccines for Measles

There is no law or regulation requiring immunization but good medical practice recognizes its value in prevention of blindness due to rubella epidemics.

VI. Detection of Glaucoma and Diabetes

There is no law or regulation requiring detection tests but the Department of Health makes such tests possible to the public on a voluntary basis by holding frequent clinics throughout the state.

VII. Fireworks

Title 20, Chapter 177, PP. 3132

Prohibitions -

(a) ----- it shall be unlawful for any person, firm, co-partnership, or corporation to offer for sale, expose for sale, sell at retail, or wholesale, possess, use or explode any fireworks; and it shall be unlawful for any person, firm, co-partnership, or corporation to transport fireworks except in interstate commerce.

VIII. Restoration of Sight and Prevention of Additional Loss

Special Services for the Blind

The Department may ---------- "furnish medical examinations, physical restoration ----------" Rules and regulations relating to Vocational Rehabilitation for the Blind require diagnostic ophthalmological exams in every case and provide for physical restoration services designed to restore vision or prevent additional loss.

Prepared by:

Division for the Blind & Visually Handicapped
Montpelier, Vermont 05602
July 7, 1972

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